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| EXAMINER | |
|---|---|
| CHU, RANDOLPH I | |
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| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/689,781 | OWADA, MITSURU | |
| | Examiner | Art Unit | |
| | Randolph Chu | 2624 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *22 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-85* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-85* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/23/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of recorded in the file.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-7, 9-12, 53-58 62-73 and 77-85 are rejected under 35 U.S.C. 102(e) as being anticipated by Chan et al. (US 2003/0113027).

With respect to claim 1, Chan et al. teaches determining a size(resolution) of an image to be outputted (Fig. 8, Ref. label 810); and decoding the encoded image data up to a layer(sub passes) of hierarchy which is at least one layer more than a minimum

number of layer/layers of hierarchy necessary to acquire an image of the determined size(Fig. 8, Ref. label 820, 830 and 840) (para. [0141]).

With respect to claim 2, Chan et al. teaches determining the minimum number of layer/layers of hierarchy necessary to acquire the image of the determined size (Fig. 8, Ref. label 820); and decoding the encoded image data up to a layer of hierarchy which is at least one layer more than the determined minimum number of layer/layers of hierarchy (Fig. 8, Ref. label 820) (para. [0141]).

With respect to claim 3, Chan et al. teaches determining a layer/layers of hierarchy each of which, when the encoded image data is decoded up to each layer, makes a size of a decoded image exceed the determined size (Fig. 6B, ref label 650); and decoding the encoded image data up to a layer of hierarchy which is at least one layer more than the lowest of the determined layer/layers (Fig. 6C, ref label 656) (para. [0141]).

With respect to claim 4, Chan et al. teaches decoding a lowest layer of hierarchy of encoded image data among layer/layers which has/have not been decoded (Fig. 6, Ref. label 656), comparing a size of an image obtained by decoding the encoded image data and the determined size (Fig. 6, Ref. label 655), and repeating the decoding of a lowest layer of hierarchy of the encoded image data among the layer/layers which has/have not been decoded when the size of the decoded image is smaller than the

determined size (Fig. 6, Ref. label E (loop)); and decoding a next lowest layer of hierarchy of the encoded image data (Fig. 6, Ref. label 660 than 656) (para. [0141]).

With respect to claim 5, Chan et al. teaches acquiring a layer of hierarchy which is at least one layer more than a minimum number of layer/layers of hierarchy necessary to obtain a decoded image of the determined size using a look up table on the basis of a size of an image to be obtained by decoding all of the encoded image data and the determined image size; and decoding the encoded image data up to the acquired layer of hierarchy (para. [0017]) (para. [0141]).

With respect to claim 6, Chan et al. teaches reducing the size of the decoded image to the determined size (Fig. 8, Ref. label 840) (para. [0141]).

With respect to claim 7, Chan et al. teaches that determining whether the minimum number of layer/layers of hierarchy corresponds to all the layers of hierarchy of the encoded image data, wherein if the determination proves true, all the layers of hierarchy of the encoded image data are decoded (Figure 6, When resolution R is maximum resolution) (para. [0141]).

With respect to claim 9, Chan et al. teaches an encoding method used is a discrete wavelet transform method (para [0010]-[0013]).

With respect to claim 10, Chan et al. teaches an encoding method used conforms to JPEG2000 (abstract).

With respect to claim 11, please refer to rejection for claim 1.

With respect to claim 12, Chan et al. teaches the program being executable by the information processing apparatus (para. [0021]).

With respect to claim 53, Chan et al. teaches determining a layer of hierarchy up to which the encoded image data is to be decoded (Fig. 6, ref. label 640); decoding the encoded image data up to the determined layer (Fig. 6, ref. label 654); judging whether or not the determined layer corresponds to the highest layer of hierarchy of the encoded image data (Fig. 6, ref. label 640); and restraining, when the determined layer does not correspond to the highest layer, a frequency component, which causes alias, of the decoded image data (para. [0092]-[0094]).

With respect to claim 56, Chan et al. teaches that a low pass filter is used in said restraining (para. [0092]-[0094]).

With respect to claim 62, Chan et al. teaches that an encoding method is a discrete wavelet transform method (para. [0059]).

With respect to claim 65, Chan et al. teaches that an encoding method conforms to JPEG2000 (para. [0059]).

With respect to claim 83, Chan et al. teaches the program being executable by the information processing apparatus (para. [0021]).

With respect to claim 54, Chan et al. teaches decoding all of the encoded image data (Fig. 6, ref. label 654); judging whether or not the encoded image data was obtained as a result of encoding all layers of hierarchy (Fig. 6, ref. label 640); and restraining, when all the layers of hierarchy have not been encoded, a frequency component, which causes alias, of the decoded image data (para. [0092]-[0094]).

With respect to claim 57, Chan et al. teaches that a low pass filter is used in said restraining (para. [0092]-[0094]).

With respect to claim 63, Chan et al. teaches that an encoding method is a discrete wavelet transform method (para. [0059]).

With respect to claim 66, Chan et al. teaches that an encoding method conforms to JPEG2000 (para. [0059]).

With respect to claim 84, Chan et al. teaches the program being executable by the information processing apparatus (para. [0021]).

With respect to claim 55, Chan et al. teaches inputting encoded image data from external (Fig. 6, ref. label 610); determining a layer of hierarchy up to which the encoded image data is to be decoded (Fig. 6, ref. label 640); decoding the encoded image data up to the determined layer (Fig. 6, ref. label 654); judging whether or not all layers of hierarchy of the encoded image data have been decoded (Fig. 6, ref. label 640); and restraining, when all the layers of hierarchy have not been decoded, a frequency component, which causes alias, of the decoded image data (para. [0092]-[0094]).

With respect to claim 58, Chan et al. teaches that a low pass filter is used in said restraining (para. [0092]-[0094]).

With respect to claim 64, Chan et al. teaches that an encoding method is a discrete wavelet transform method (para. [0059]).

With respect to claim 67, Chan et al. teaches that an encoding method conforms to JPEG2000 (para. [0059]).

With respect to claim 85, Chan et al. teaches the program being executable by the information processing apparatus (para. [0021]).

With respect to claim 68, please refer to rejection for claim 53.

With respect to claim 69, please refer to rejection for claim 54.

With respect to claim 70, please refer to rejection for claim 55.

With respect to claim 71, please refer to rejection for claim 56.

With respect to claim 72, please refer to rejection for claim 57.

With respect to claim 73, please refer to rejection for claim 58.

With respect to claim 77, please refer to rejection for claim 77.

With respect to claim 78, please refer to rejection for claim 78.

With respect to claim 79, please refer to rejection for claim 79.

With respect to claim 80, please refer to rejection for claim 80.

With respect to claim 81, please refer to rejection for claim 81.

With respect to claim 82, please refer to rejection for claim 82.

4. Claims 13-16, 18-20, 22 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Chui et al. (US 2003/0123744).

With respect to claim 13, Chui et al. teaches determining a size of an image to be outputted (Fig. 6, ref. label 252; para. [0129]); and encoding the image up to a layer of hierarchy which is at least one layer more than a minimum number of layer/layers of

hierarchy necessary to acquire an image of the determined size (Fig. 6, ref. label 254, 256, 257, 258).

With respect to claim 14, Chui et al. teaches determining the minimum number of layer/layers of hierarchy necessary to acquire an image of the determined size (Fig. 6, ref. label 252; para. [0129]); and encoding the image up to a layer of hierarchy which is at least one layer more than the determined minimum number of layer/layers of hierarchy (Fig. 6, ref. label 254, 256, 257, 258).

With respect to claim 15, Chui et al. teaches determining the minimum number of layer/layers of hierarchy necessary to acquire an image of the determined size (Fig. 6, ref. label 252; para. [0129]) and encoding the image up to a layer of hierarchy which is at least one layer more than the determined minimum number of layer/layers of hierarchy (Fig. 6, ref. label 254, 256, 257, 258).

With respect to claim 16, Chui et al. teaches encoding a lowest layer of hierarchy of an image among layer/layers which has/have not been encoded (Fig. 6, ref. label 254), comparing a size of an encoded image and the determined size(Fig. 6, ref. label 257), and repeating encoding of a lowest layer of hierarchy of the image among the layer/layers which has/have not decoded when the size of the encoded image is smaller than the determined size( Fig. 6, Loop); and encoding a next lowest layer of hierarchy of the image (Fig. 6, ref. label 254).

With respect to claim 18, Chui et al. teaches determining whether the minimum number of layer/layers of hierarchy corresponds to all the layers of hierarchy to which the image data can be encoded, wherein if the determination proves true, the image are encoded up to the possible layer (Fig. 6, ref. label 257).

With respect to claim 19, Chui et al. teaches the determined size includes horizontal pixel number information and vertical pixel number information (para. [0129]).

With respect to claim 20, Chui et al. teaches an encoding method is a discrete wavelet transform method (para. [0130]-[132]).

With respect to claim 23, Chui et al. teaches the program being executable by the information processing apparatus (para. [0144]).

With respect to claim 22, please refer to rejection for claim 13.

5. Claims 24-52 are rejected under 35 U.S.C. 102(b) as being anticipated by Rabbani and Joshi ("An Overview of the JPEG 2000 still image compression standard", Signal Processing: Image Communication 17 (2002) 3-48).

With respect claim 24, Rabbani and Joshi teaches restraining a frequency component which causes alias of an image signal of the image at the time of separating

the image signal into layers of hierarchy; and separating the restrained image signal into layers of hierarchy (pages 7-8, 2.2.1 The 1-D DWT; page 10, 2.2.2 The 2-D DWT).

With respect claim 25, Rabbani and Joshi teaches restraining a high frequency component of the input image signal; and restraining a low frequency component of the input image signal (pages 7-8, 2.2.1 The 1-D DWT).

With respect claim 26, Rabbani and Joshi teaches that a low pass filter is used in said restraining of the high frequency component, and an output from said low pass filter is subtracted from the input image signal in said restraining of the low frequency component (pages 7-8, 2.2.1 The 1-D DWT).

With respect claim 27, Rabbani and Joshi teaches that a high pass filter is used in said restraining of the low frequency component, and an output from the high pass filter is subtracted from the input image signal in said restraining of the high frequency component (pages 7-8, 2.2.1 The 1-D DWT).

With respect claim 28, Rabbani and Joshi teaches that a low pass filter is used in said restraining of the high frequency component, and a high pass filter is used in said restraining of the low frequency component (pages 7-8, 2.2.1 The 1-D DWT).

With respect claim 29, Rabbani and Joshi teaches repeating said restraining and said separating for an image signal obtained by separating the image signal whose high frequency component is restrained (pages 10-11, 2.2.2 The 2-D DWT).

With respect claim 30, Rabbani and Joshi teaches that a filter is used in said separating (Analysis filter bank), and a passband of the low pass filter is narrower than a passband of the filter used in said separating (pages 7-8, 2.2.1 The 1-D DWT).

With respect claim 31, Rabbani and Joshi teaches that a filter is used in said separating (Analysis filter bank), and a passband of the low pass filter is narrower than a passband of the filter used in said separating (pages 7-8, 2.2.1 The 1-D DWT).

With respect claim 32, Rabbani and Joshi teaches that a filter is used in said separating (Analysis filter bank), and a passband of the low pass filter is narrower than a passband of the filter used in said separating (pages 7-8, 2.2.1 The 1-D DWT).

With respect claim 33, Rabbani and Joshi teaches that a filter is used in said separating (Analysis filter bank), and a passband of the low pass filter is narrower than a passband of the filter used in said separating (pages 7-8, 2.2.1 The 1-D DWT).

With respect claim 34, Rabbani and Joshi teaches said restraining of a high frequency component and a low frequency component, at least either one of a

horizontal component and a vertical component of the image signal is restrained. (pages 10-11, 2.2.2 The 2-D DWT).

With respect claim 35, Rabbani and Joshi teaches that an encoding method is a discrete wavelet transform method (pages 10-11, 2.2.2 The 2-D DWT).

With respect claim 36, Rabbani and Joshi teaches that an encoding method uses an orthogonal mirror filter (bi-orthogonal filter that satisfy certain symmetry condition) at least (pages 9, 2.2.1 The 1-D DWT).

With respect claim 37, Rabbani and Joshi teaches an encoding method conforms to JPEG2000 (pages 10-11, 2.2.2 The 2-D DWT).

With respect to claim 38, please refer to rejection for claim 24.

With respect to claim 39, please refer to rejection for claim 25.

With respect to claim 40, please refer to rejection for claim 26.

With respect to claim 41, please refer to rejection for claim 27

With respect to claim 42, please refer to rejection for claim 28.

With respect to claim 43, please refer to rejection for claim 29.

With respect to claim 44, please refer to rejection for claim 30.

With respect to claim 45, please refer to rejection for claim 31.

With respect to claim 46, please refer to rejection for claim 32.

With respect to claim 47, please refer to rejection for claim 33.

With respect to claim 48, please refer to rejection for claim 34.

With respect to claim 49, please refer to rejection for claim 35.

With respect to claim 50, please refer to rejection for claim 36.

With respect to claim 51, please refer to rejection for claim 37.

With respect to claim 52, please refer to rejection for claim 24.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 8 is rejected under 35 USC 103(a) as being unpatentable over Chan et al. (US 2003/0113027)

Chan et al. teaches all the limitations of claim 1 as applied above from which claim 8 respectively depend.

Chan et al. does not disclose expressly that the determined size includes horizontal pixel number information and vertical pixel number information

Chan et al. teaches that image is rectangular.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to determine horizontally and vertically when determine rectangular image size in the method of Chan et al.

8. Claim 17 is rejected under 35 USC 103(a) as being unpatentable over Chui et al. (US 2003/0123744) in view of Chaddha (US 6,360,019).

Chan et al. teaches all the limitations of claim 13 as applied above from which claim 17 respectively depend.

Chan et al. also teaches acquiring a layer of hierarchy which is at least one layer more than a minimum number of layer/layers of hierarchy necessary to obtain an encoded image of the determined size.

Chan et al. does not teach using a look up table.

Chaddha teach using a look up table (col. 17 lines 42-63).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use look up table in the method of Chui et al.

The suggestion/motivation for doing so would have been that look up table minimize the amount of computer resources and time often required for processing by avoiding repeating calculation.

Therefore, it would have been obvious to combine Chaddha and Joshi with Chui et al. to obtain the invention as specified in claim 17.

9. Claim 21 is rejected under 35 USC 103(a) as being unpatentable over Chui et al. (US 2003/0123744).

Chan et al. teaches all the limitations of claim 13 as applied above from which claim 21 respectively depend.

Chan et al. does not disclose expressly that an encoding method conforms to JPEG2000.

Chan et al. teaches image compression encoding method with DWT.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to conform with JPEG 2000 standard, in the method of Chan et al.

The suggestion/motivation for doing so would have been that encoding method can be conformed with JPEG 2000 standards so that encoding method can be widely used.

10. Claims 59-61 and 74-76 are rejected under 35 USC 103(a) as being unpatentable over Chan et al. (US 2003/0113027) in view of Rabbani and Joshi ("An Overview of the JPEG 2000 still image compression standard", Signal Processing: Image Communication 17 (2002) 3-48).

Chan et al. teaches all the limitations of claims 53, 55 and 56 as applied above from which claims 59, 60 and 61 respectively depend.

Chan et al. does not teach expressly that said restraining, at least a horizontal component or a vertical component is restrained.

Rabbani and Joshi teach said that restraining, at least a horizontal component or a vertical component is restrained (pages 10-11, 2.2.2 The 2-D DWT).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to restraining horizontal component or a vertical component in the method of Chan et al.

The suggestion/motivation for doing so would have been that filter for 2D image can be easily implemented using 2 1D filter (horizontal analysis filter and vertical analysis filter) .

Therefore, it would have been obvious to combine Rabbani and Joshi with Chan et al. to obtain the invention as specified in claims 59-61.

With respect to claim 74, please refer to rejection for claim 59.

With respect to claim 75, please refer to rejection for claim 60.

With respect to claim 76, please refer to rejection for claim 61.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randolph Chu whose telephone number is 571-270-1145. The examiner can normally be reached on Monday to Thursday from 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on 571-272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RIC/